APELEM

DMS GROUP

Remote Controlled Tables

BACCARA 90/20 & 90/25 HV

USER'S MANUAL (Ref. 80-40-002- Rev. L – Date January 2006)

APELEM-DMS GROUP Parc Scientifique Georges Besse
175 Allée Von Neumann, 30035 Nîmes cedex 1- France
Tel + 33 (0)4 66 29 09 07 - Fax +33 (0)4 66 29 71 23 - e-mail:
export@apelem.com

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1. SAFETY AND COMPLIANCE

The purpose of this user's manual is to provide a set of easy instructions for a proper use of the system.

All of information contained herein is based on the current version of the system.

APELEM-DMS Group reserves the right to improve and implement changes to the information herein in order to reflect any changes required by technological enhancements.

1.1. INTENDED USE OF THE UNIT

BACCARA Table has been designed to satisfy the most demanding practitioners in Digital techniques. Completely multipurpose and extremely efficient, the BACCARA Table in its traditional version has a spot film device (for 18 x 24 and 36 x 43 cm cassettes) that allows specific and reliable diagnosis (1/2/3/4 and 5 cuttings and on large sizes of cassettes).

It allows gastro-intestinal examinations, urology, pulmonary, hysterography, lymphography, skeleton radiography, tomography and pediatrics (the grid is retractable).

This system is especially intended to radiological use.

This X-ray equipment must be used in strict compliance with safety rules contained in this manual, and cannot be used for other purposes than those for which it has been designed.

1.2. SAFETY

Only personnel qualified enough to radiations protection methods and trained enough to X-ray unit safety and operating rules may use this unit.

It is incumbent upon the operator to use the unit in compliance with safety standards relating to the installation and the use of X-ray units.

Only trained service personnel authorized by APELEM-DMS Group may remove the unit covers and only in accordance with the instructions contained in the Service Manual.

This equipment is not intended to function in an atmosphere containing explosive gas or where there exists a danger of explosion.

It is imperative for both patient and operator safety, that the unit be checked every 6 months in order to guarantee its efficiency and its reliability during ten years of its lifetime.

Worn parts may become dangerous; they must be checked and replaced by new ones.

Circuits and safety systems must not be moved for any reason, modified or removed.

Before using the unit, the operator must ensure that all safety devices are in working order.

This X-ray unit may only be used in environments or medical rooms in compliance with the applicable IEC standards.

The unit must not operate when mechanical or radiological faults occur, or when indicators or warning light are faulty. When the unit is jointly used with other unit, component or module whose compatibility is unknown, ensure of lack of danger to the patient or to the operator. For all information, call APELEM-DMS Group Society.

No modification must be brought to the unit without the authorization of the manufacturer.
Check regularly the condition of cables and connections; replace them if they show sign of wear. In case of doubt, call the Manufacturer.

APELEM-DMS Group is responsible for the safety of its products only when maintenance, repairs, or modifications have been performed by its personnel or by personnel authorized by APELEM-DMS Group in writing.

APELEM-DMS Group cannot be held liable for any malfunction, damage, or danger resulting from improper use of the system or non-compliance with the rules for proper maintenance.

NE PAS DEPLACER LE PANNEAU AVEC UN PATIENT ASSIS

DO NOT MOVE THE PANEL WITH A PATIENT IN THE SEATED POSITION

For the tables provided with an optional digital system and an optional I.I. elevator, never switch off the generator before the table.

1.3. ELECTRICAL SAFETY

Only trained service personnel authorized by APELEM-DMS Group may remove the unit covers and only in accordance with the instructions contained in the Service Manual.

This X-ray unit may only be used in environments or medical rooms in compliance with the applicable IEC standards.
The X-ray unit must not be used in areas where there exists a danger of explosion.
Cleaning and disinfecting agents, including those used on patients, may create an explosive, gaseous mixture.
Use only those products in compliance with the applicable rules.

1.4. LASER TARGETING DEVICES SAFETY

Keep always a good lightening on the room.
Never look through the output window of the laser-targeting device.
Never fix the reflections of the laser targeting devices.
Before starting any examination, the patient must remove earrings, glasses, necklaces and whatever could reflect the laser beam and be printed on the image.
Don't clean the openings of the laser targeting devices with tools that could modify their optics. Only the service personnel must perform possible cleaning actions.
The min. distance between the laser source and the patient must not be lower than cm20.

The only purpose of the laser use is to reduce the patient dose to a minimum.
The activation of procedures other those listed above can cause the emission of dangerous non-ionizing radiations.

1.5. ELECTROMAGNETIC COMPATIBILITY (EMC)

This apparatus is in compliance with IEC 60601-1-2 standard regarding EMC, Directive 89/336, that defines the allowed emission levels from electronic devices and the required immunity from interference caused by externally generated electromagnetic fields.

It is not, however, possible to exclude radio signals coming from transmitters such as mobile phones or similar mobile radio devices. These and other transmitting devices, including those in compliance with the EMC standards, may influence the proper functioning of medical apparatus when used in proximity and with a relatively high transmitting power.

Therefore, the use of radio equipment proximity to electronically controlled systems must be avoided in order to eliminate any interference risk.

Any transmissions by mobile radio equipment must be avoided.
Mobile phones must be switched off in zones close to the unit.
These rules must be applied when the unit is switched on (that is to say connected to the mains and ready for use).

1.6. PROTECTION AGAINST IONIZING RADIATIONS

Before any x-ray exposure, ensure that all the necessary protective precautions have been taken.

During the use of x-rays, personnel present in the room must comply with the following rules concerning protection against ionizing radiation:

When necessary, use protective shielding against radiation in addition to the shielding already provided on the unit.

Use protective aprons containing a material equivalent to 0,35mm of lead. Material of this nature reduces radiation at 50kV by 99,95% and at 100kV by 94,5%.
The best protection against radiation is distance. It is therefore recommended that you stay as far as possible from the x-ray source and the exposure target. For this purpose, use all of the cable length provided for the foot-switch.

Avoid walking or standing directly in the x-ray beam.
Always use the smallest possible field of exposure by closing properly the collimator diaphragms.

Never modify or disconnect the safety circuits or devices designed to prevent accidental exposures.

1.7. GENERAL DISPOSAL

APELEM-DMS Group produces radiological systems that are advanced in terms of safety and environmental protection. Assuming that the unit is properly used, there is no risk to people or the environment.

In order to comply with applicable safety requirements, it is necessary to use materials that may be harmful to the environment (for example: monobloc oil, protective lead, monitor kinescope, boards and electronic components). Therefore, when necessary, it needs dispose of them in a proper way according to the regulations applied in the country where the unit is installed.

For this reason, the unit may not be disposed of along with industrial or domestic waste and must be regarded as hazardous waste.

For additional information, contact APELEM-DMS Group.

1.8. TRANSPORT

Any time it is traveling, the device must be carried in its original packing and must not be moved without taking precautions. For more details, please contact APELEM-DMS Agent.

1.9. INSTALLATION

The installation of the system must be done in a room exempt of humidity and dust.
For more information, please, refer to the § 1.2 "Safety" mentioned above.

1.10. OPERATING

The conditions of use are the following :

- Ambient temperature : 10 to 30°C
- Relative humidity : 30 to 75%
- Atmospheric pressure range : 700 to 1060 hPA

1.11. STORAGE

The conditions of storage are the following :

- Temperature : 0 to 40°C
- Relative humidity : 10 to 80%
- Pressure : 700 to 1060 hPA

After a period of storage at a temperature inferior to 10°C, it is recommended to place the turned-off device in place with a temperature of between 10° to 40°C for a minimum period of 4 hours.

1.12. CLEANING AND DISINFECTION

Before cleaning the unit make sure that the power supply is disconnected, and the trolley is switched off.

Clean the unit using a humid rag and tepid water.

Do not use detergents or sprays abrasive or corrosive like Acetone or pure alcohol, only alkaloid solutions with a soft rag.

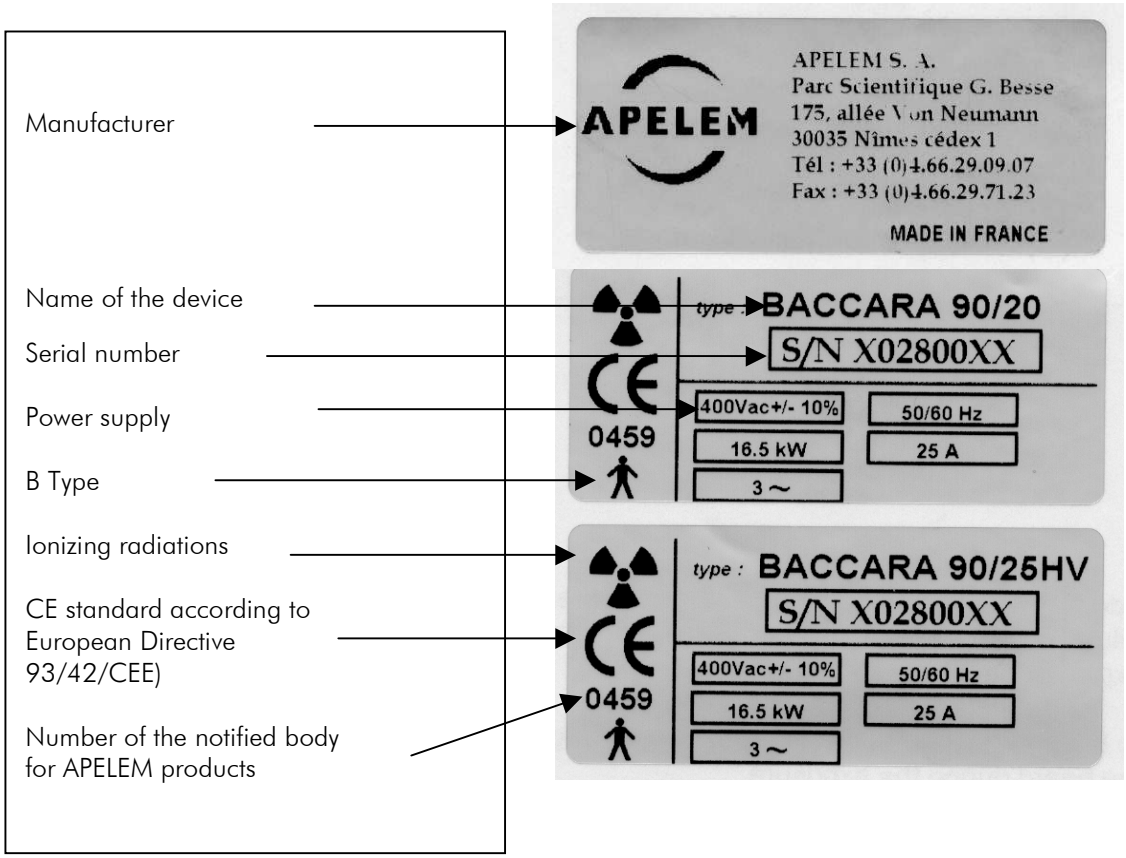
Be careful not to allow water or liquid of any kind to enter the unit or in the trolley as this could cause a short-circuit or corrosion to occur.

1.13. LIFE TIME

The lifetime of the BACCARA Table is 10 years. Beyond this time, the Manufacturer does not guarantee technical specifications from origin .

When the unit is out of order, it has to be recycled according to the country current regulations.

1.14. DESCRIPTION OF LABELS



1.15. REGULATION

This device is in conformity with the IEC 60601-1 standard and belongs to II b class according to the 93/42/CEE norm, appendix IX, regulation 10.

1.16. APELEM-DMS Group WARRANTY

The validity of DMS-APELEM is 12 months from certificate receipt date and it covers mending or free replacement of spare parts as well as handwork (except for the unload tubes which have a warranty in proportion to 12 months).

APELEM – DMS warranty is not valid for operations and mending caused by external factors:
- Fire, explosion, floods, subsidence of buildings,
- Default of the device relative to the environmental conditions,
- Non respect or non observance of the prescriptions given by the manufacturer in the User's manual,
- Operations or mending carried out by a non qualified staff and not agreed by APELEM – DMS Group

APELEM-DMS
Parc Scientifique Georges Besse
175, allée Von Neumann
30035 NIMES CEDEX 9 - FRANCE

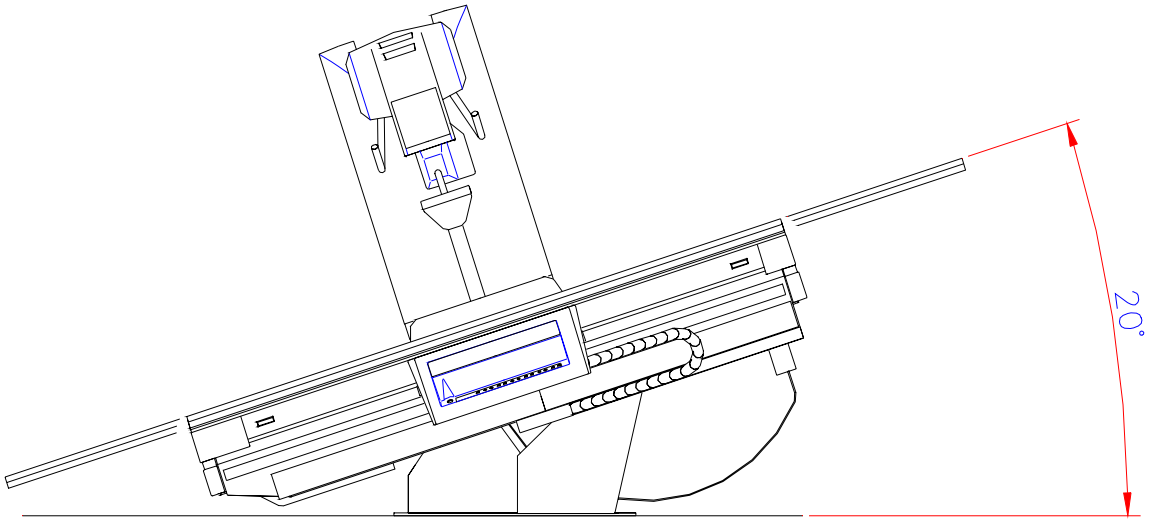
Tel 00 33 04 66 29 09 07
Fax 00 33 04 66 29 09 98
e-mail : export@apelem.com

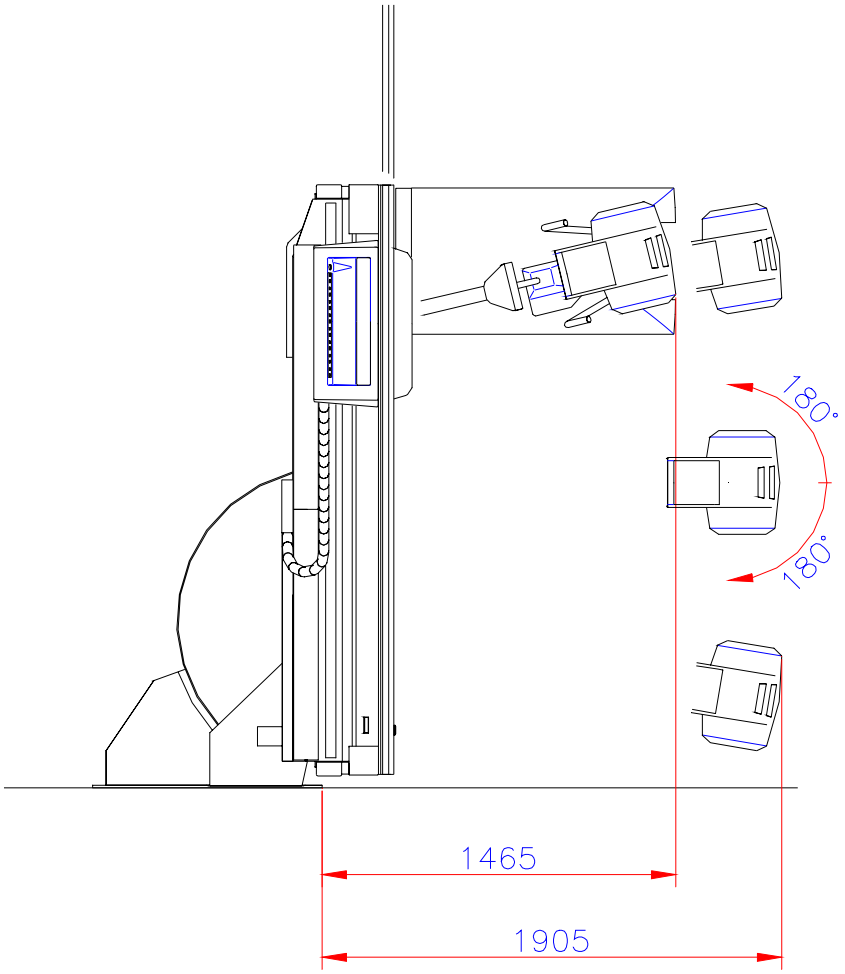
2. PRODUCT DESCRIPTION

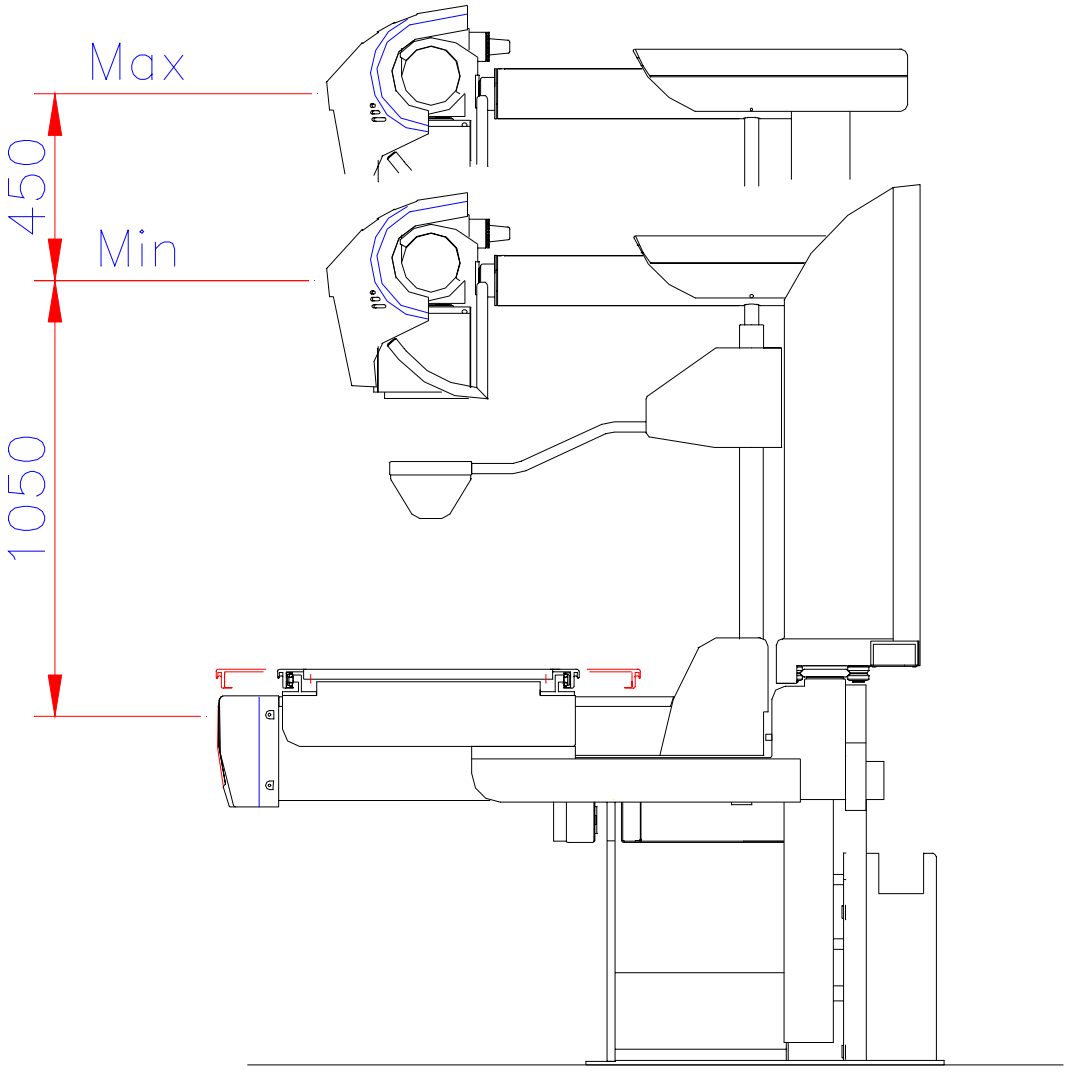
2.1. BACCARA 90/20

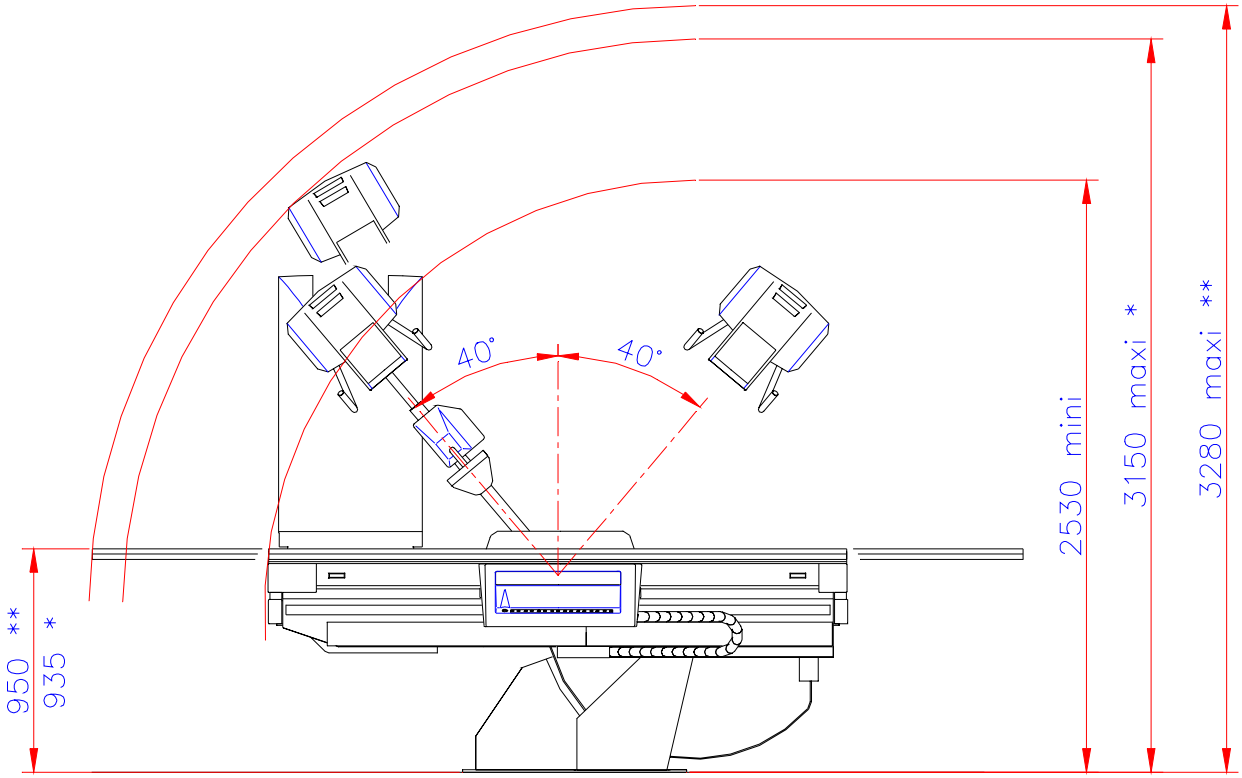
Remote Controlled Table BACCARA 90/20
(Elevator and tilting from 90° to 20°)

2.1.1. BACCARA 90/20 MECHANICAL DRAWINGS AND DIMENSIONS

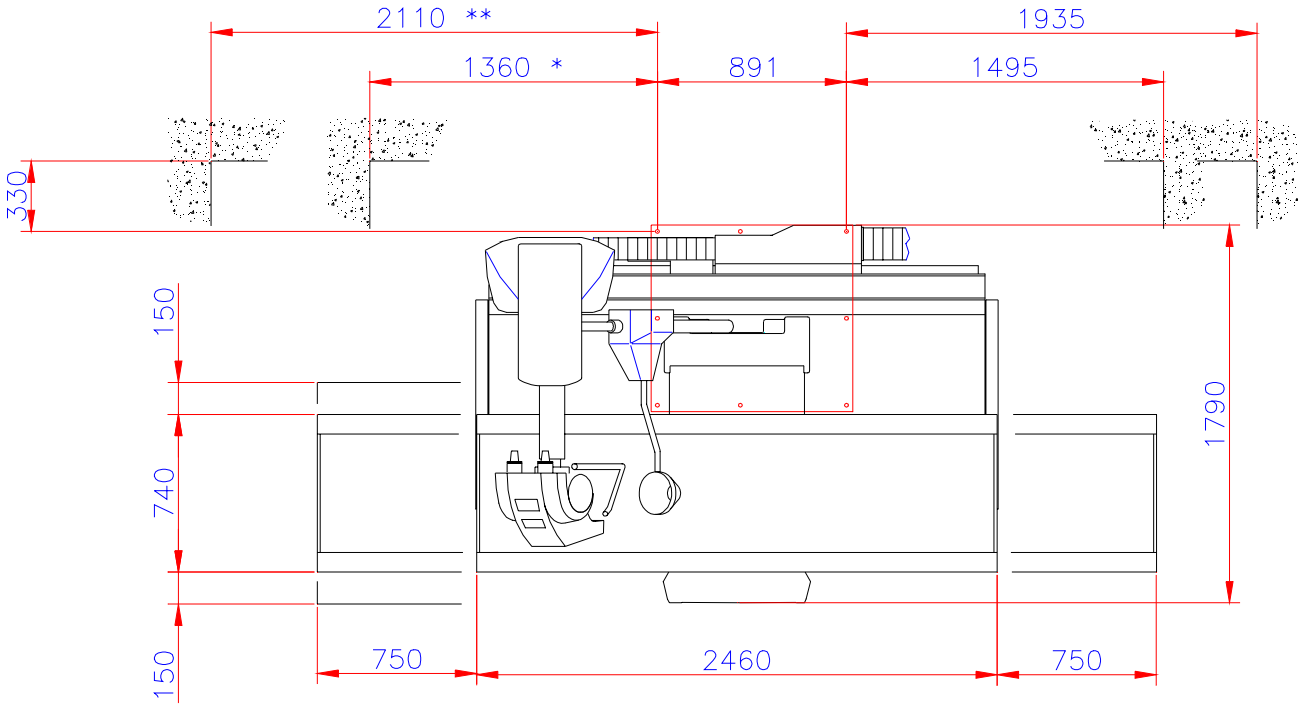





Max
450
Min
1050



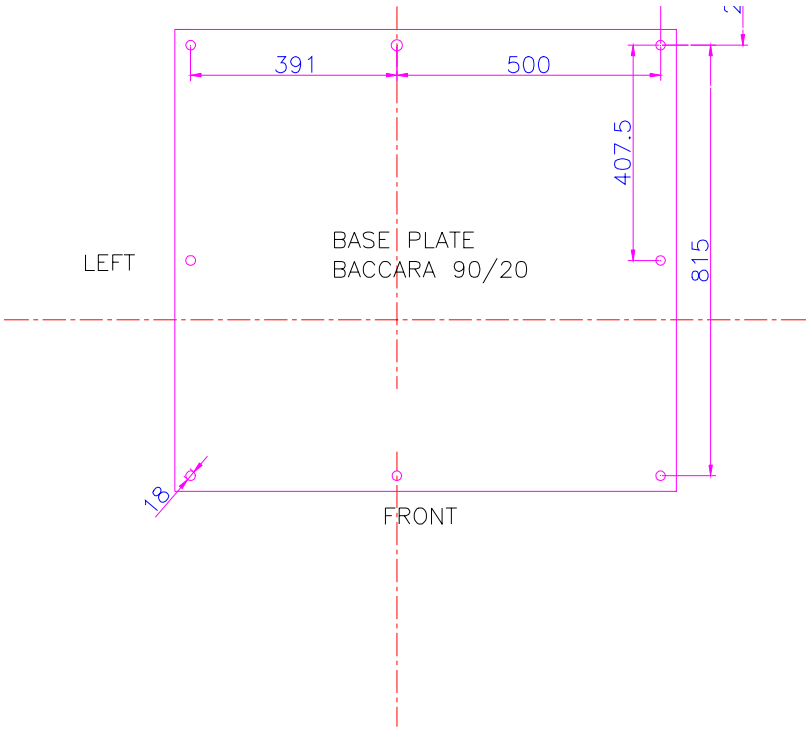
* Panneau 2 voies / 2 ways t.top
** Panneau 4 voies / 4 ways t.top



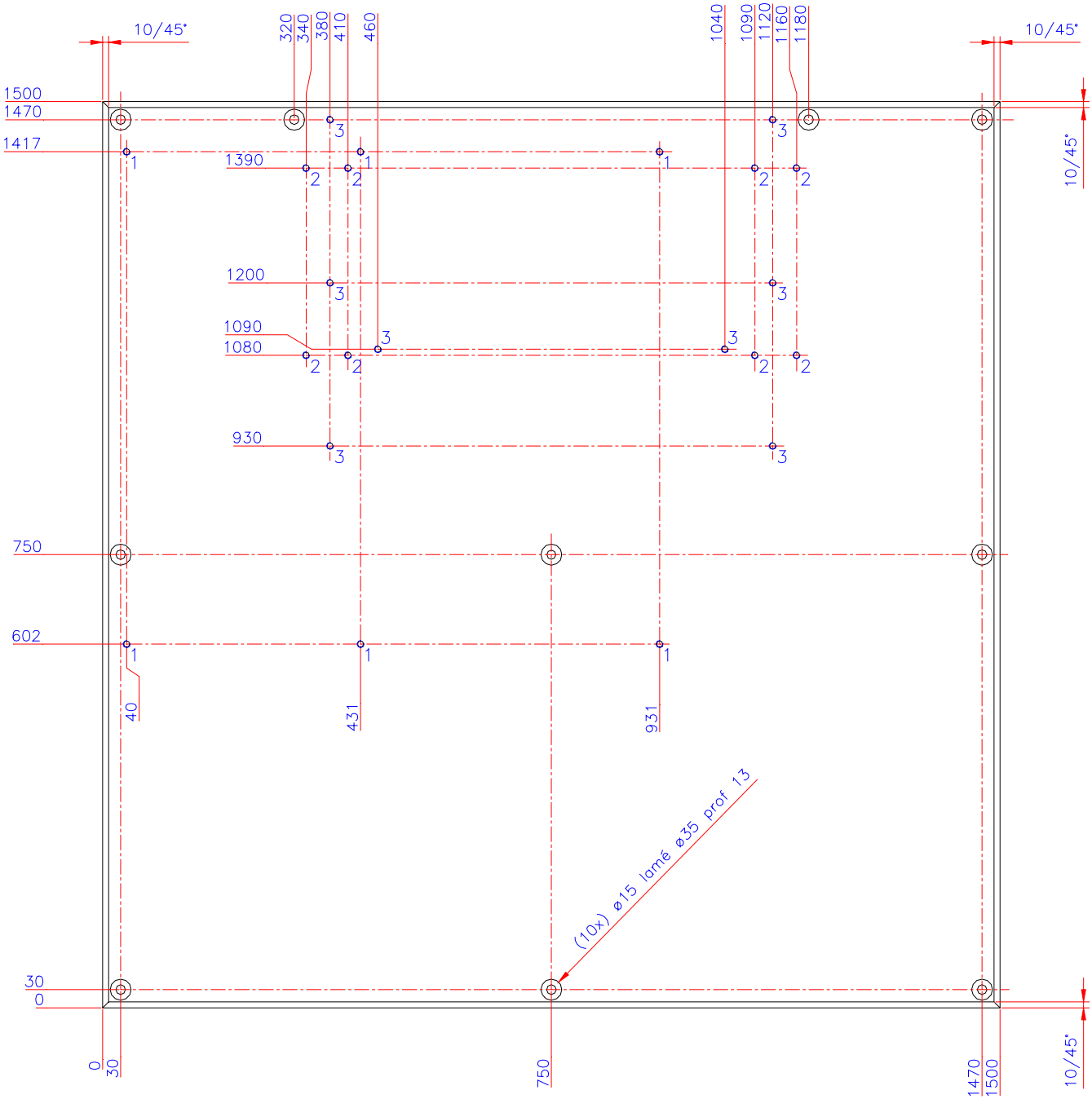
* Panneau 2 voies / 2 ways t.top
** Panneau 4 voies / 4 ways t.top

2.1.2. BACCARA 90/20 STRAIGHT SCREWED ON THE FLOOR

Before starting the table installation, check the levelness of the floor, correct it if necessary.
The table will be hold on the ground by 8 fixing points which can resist to a 1000 daN tractive effort.



2.1.3. FASTENING THE BACCARA 90/20 WITH A DISTRIBUTION PLATE



Note: Only the reference mark n°1 refers to the 90/20 BACCARA table mounting.

The presence of the distribution plate is only necessary in case the floor is not strong enough to support the table.

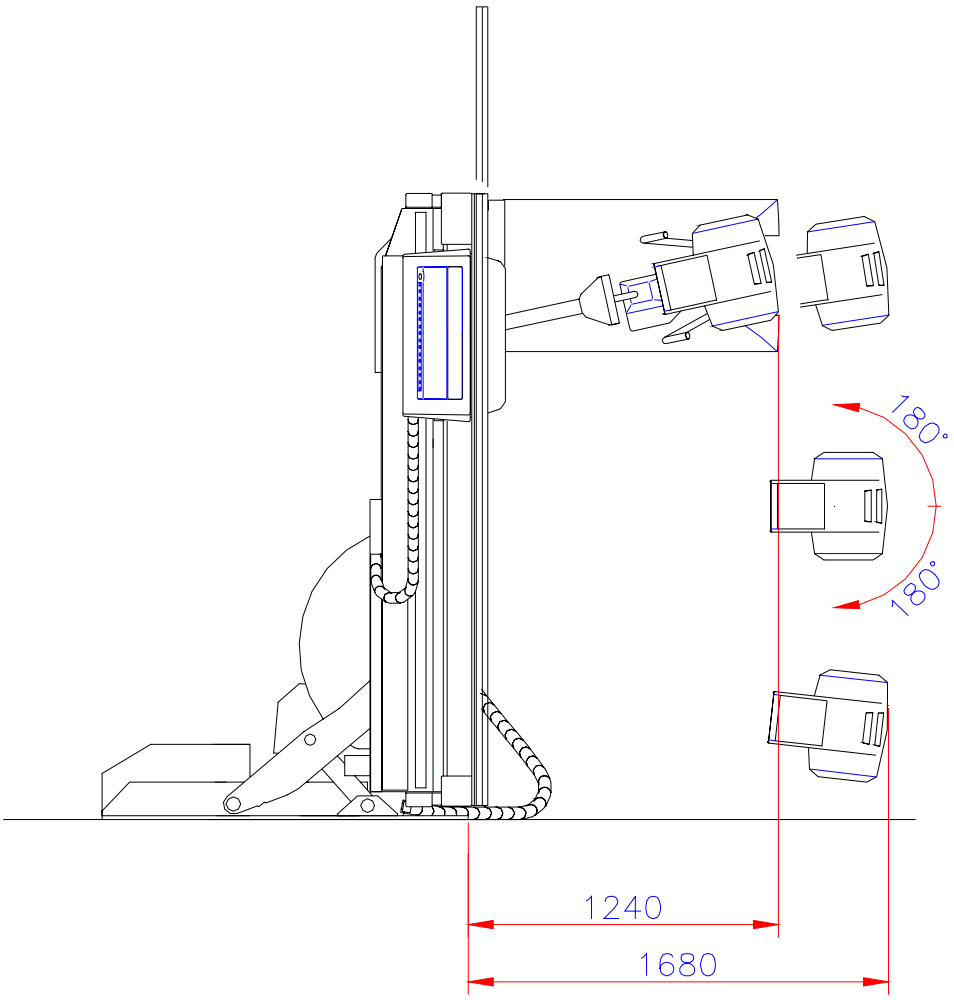
The distribution plate will be hold on the ground by 8 fixing points, which can resist to a 1000 daN tractive effort. Then, the table will be hold on the distribution plate by 8 fixing points which can resist to a 1000 daN tractive effort.

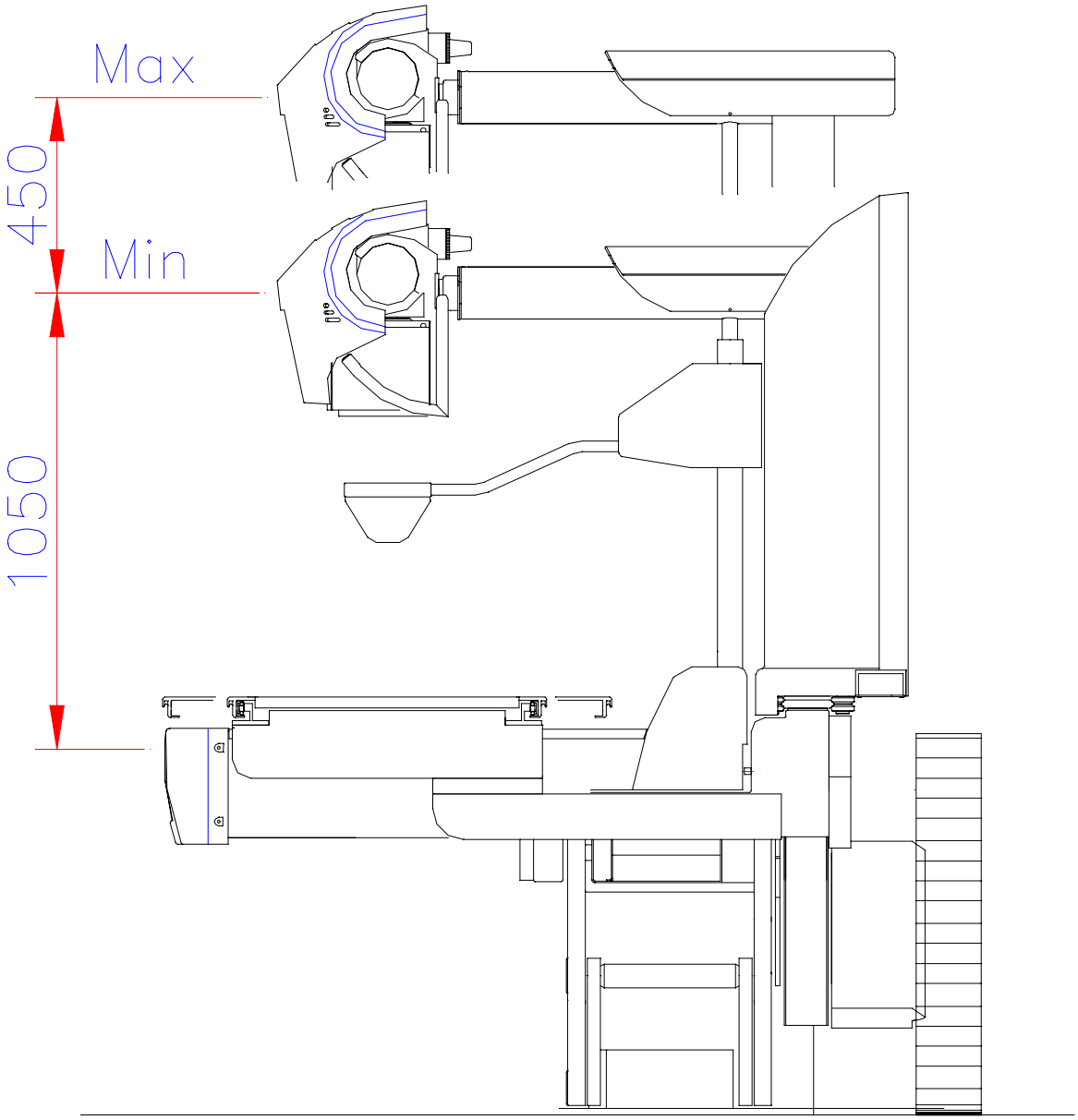
We remind to the user that the distribution plate is not supplied by APELEM-DMS Group.

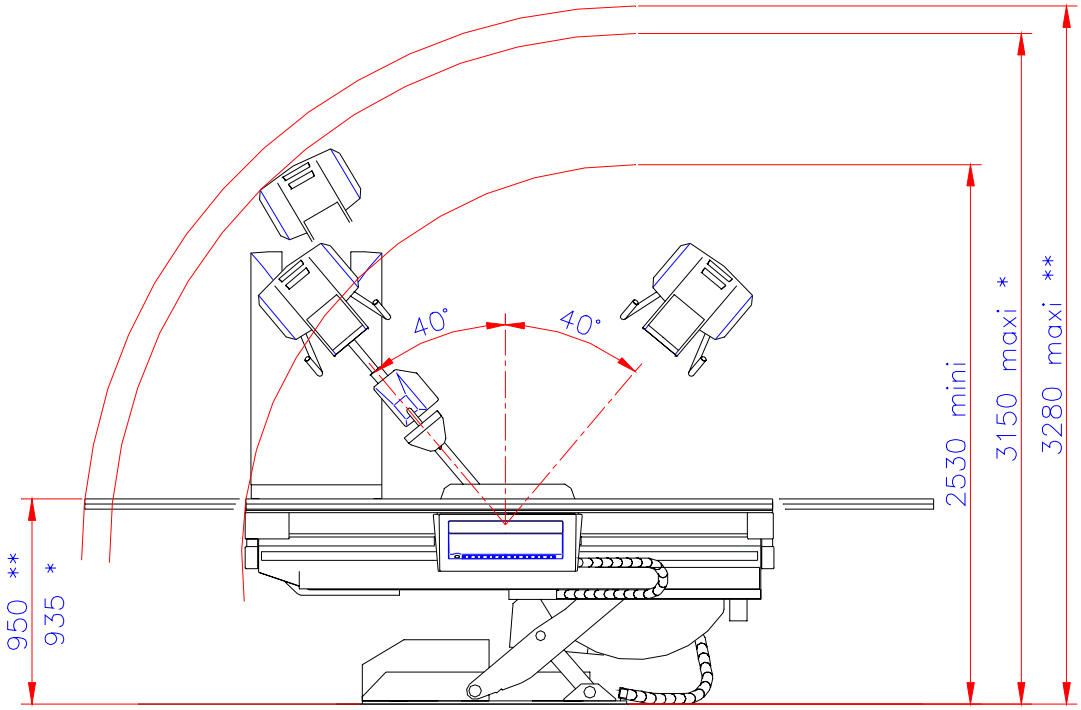
2.2. BACCARA 90/25 HV

Remote Controlled Table BACCARA 90/25HV
(Variable height and tilting de 90° to 25°)

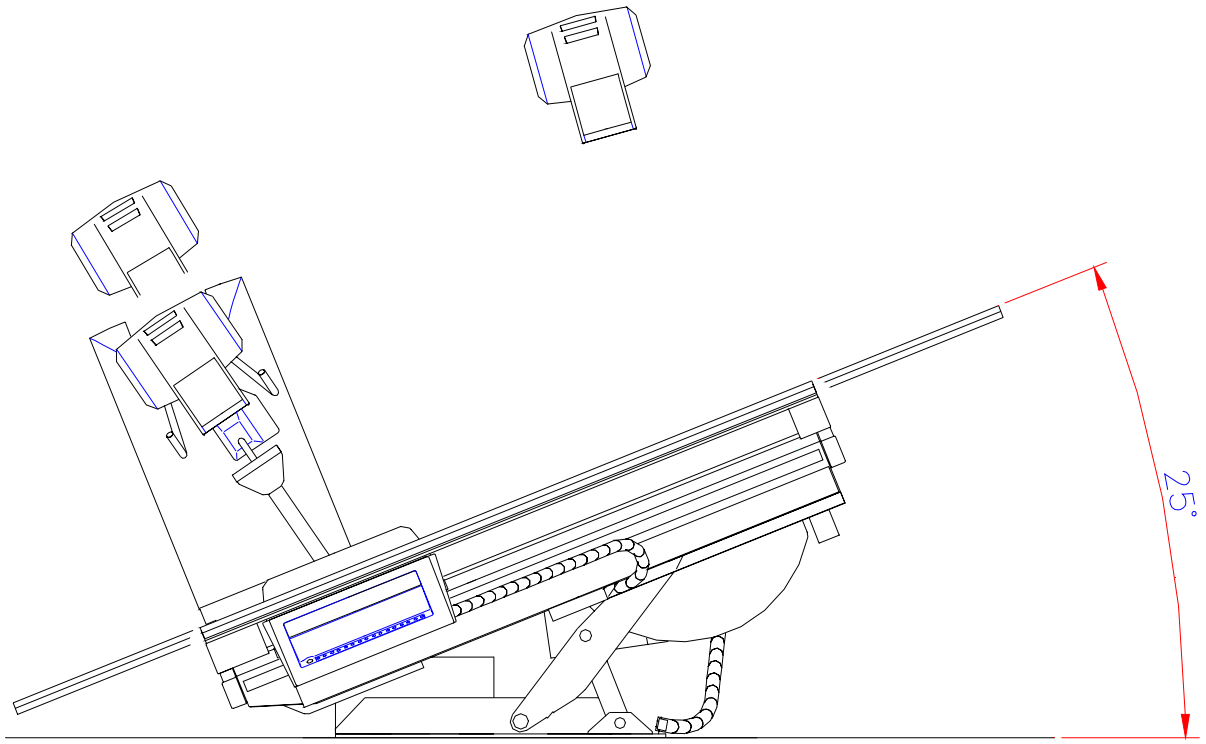
2.2.1. BACCARA 90/25 HV MECHANICAL DRAWINGS AND DIMENSIONS

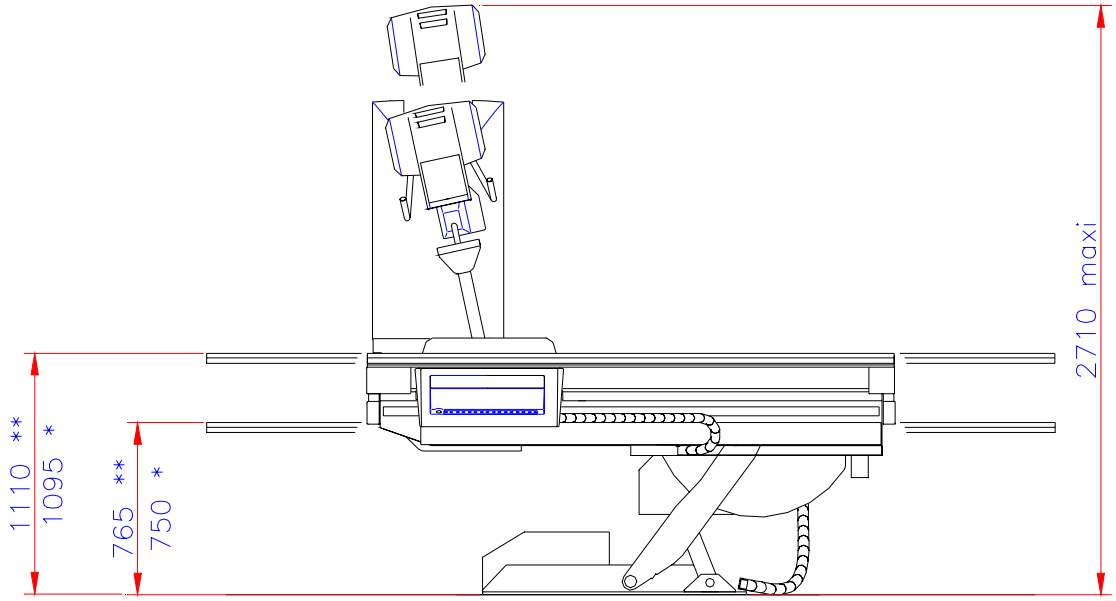



Max
450
Min
1050

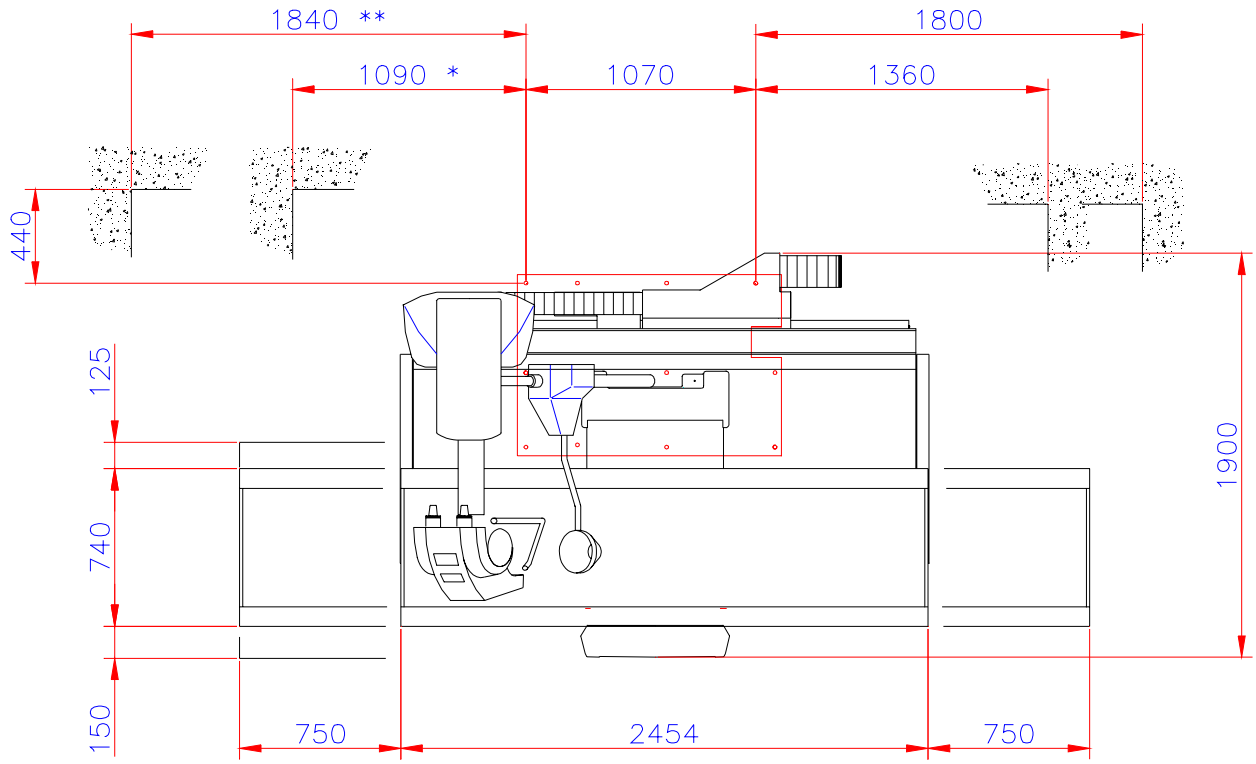


* Panneau 2 voies / 2 ways t.top
** Panneau 4 voies / 4 ways t.top


25°



* Panneau 2 voies / 2 ways t.top
** Panneau 4 voies / 4 ways t.top



* Panneau 2 voies / 2 ways t.top
** Panneau 4 voies / 4 ways t.top

2.2.2. BACCARA 90/25 HV STRAIGHT SCREWED ON THE FLOOR

Before starting the table installation, check the levelness of the floor, correct it if necessary.
The table will be hold on the ground by 11 fixing points which can resist to a 1000 daN tractive effort.

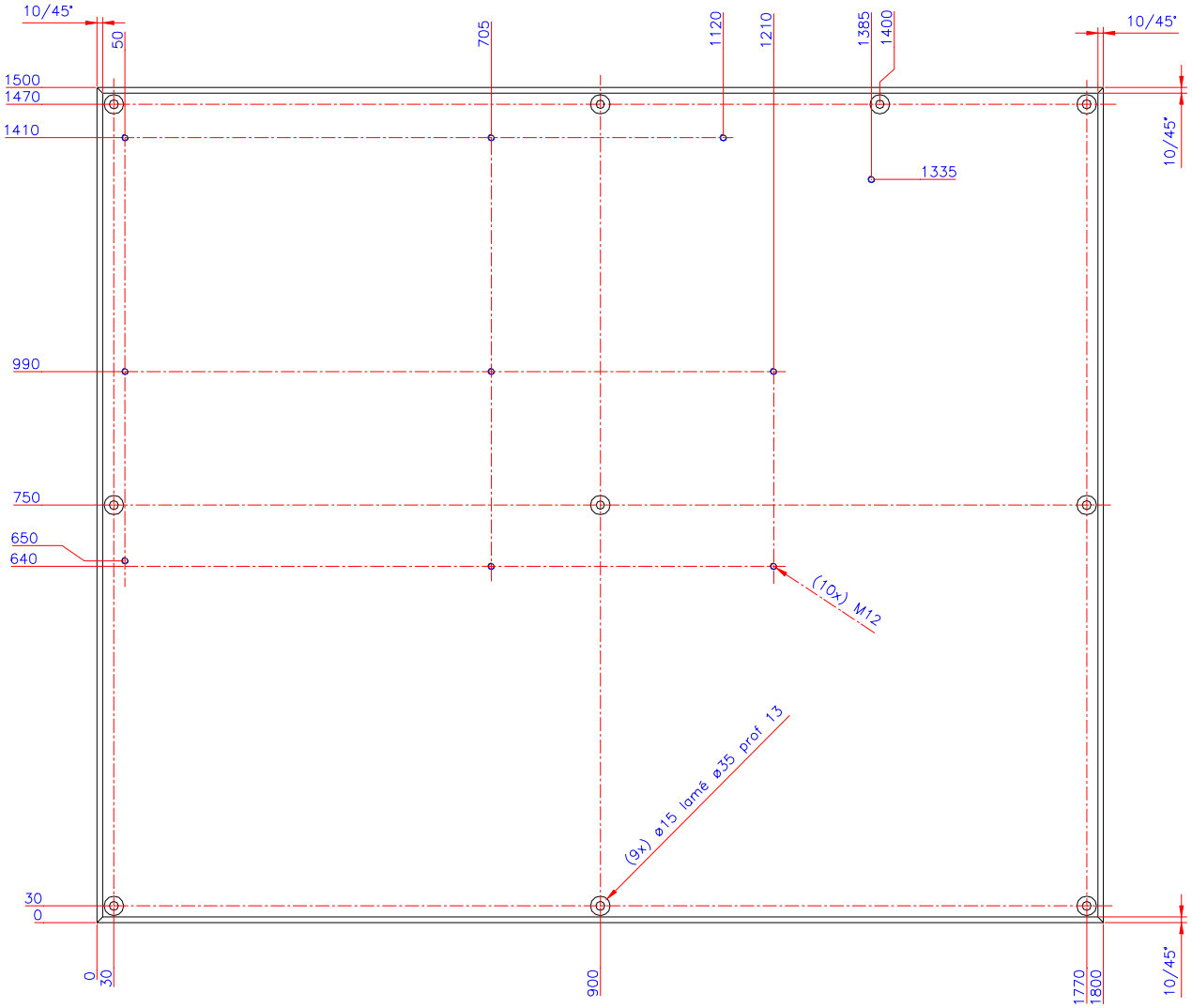
See Diagram N° M80 22 48 next page.

2.2.3. FASTENING THE BACCARA 90/25 HV WITH A DISTRIBUTION PLATE

The presence of the distribution plate is only necessary in case the floor is not strong enough to support the table.

The distribution plate will be hold on the ground by 10 fixing points, which can resist to a 1000 daN tractive effort. Then, the table will be hold on the base plate by 11 fixing points which can resist to a 1000 daN tractive effort.

We remind to the user that the distribution plate is not supplied by APELEM-DMS Group.



Distribution plate

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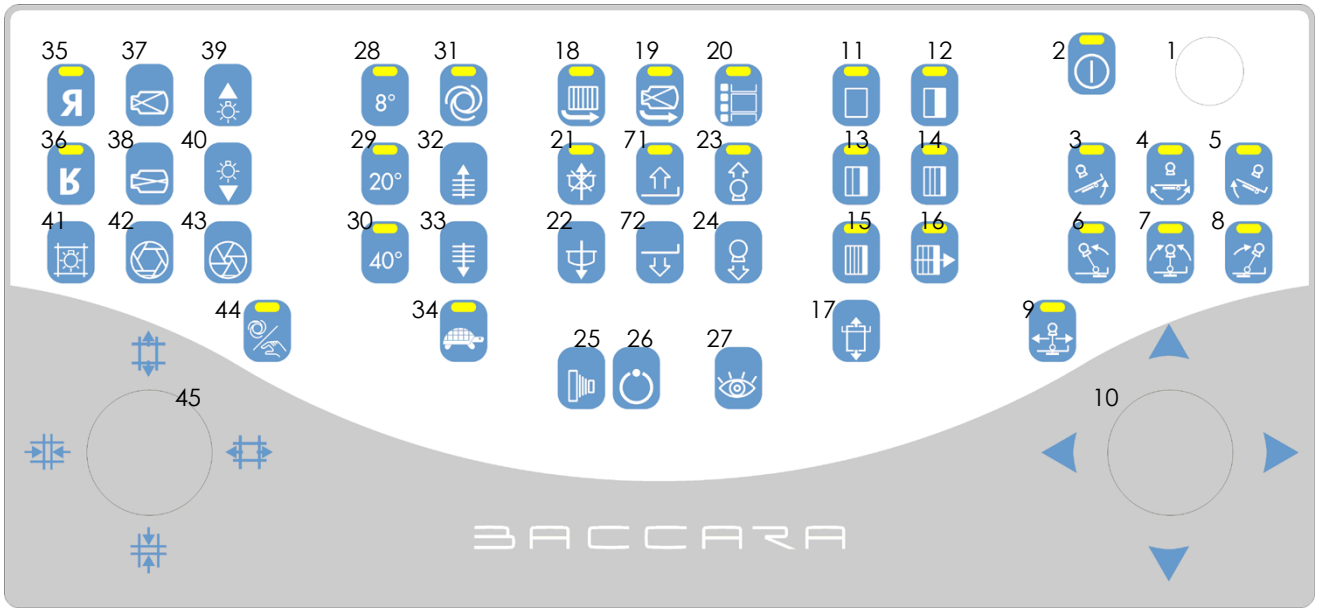
3.TECHNICAL SPECIFICATIONS

GENERAL		
	BACCARA 90/20	**BACCARA 90/25 HV**
Three phase power supply	400 V + Neutral + Earth	400 V + Neutral + Earth
Safety cut off	25 A – D curve	25 A – D curve
Average power	5 kW	5 kW
Fixed elevation	90 cm	
Variable height	NO	82/106 (0 ± 2cm)
Tilting	-20°/+90°	+90°/-20 (0,-4°) with automatic stop at zero
Time of tilting	15,7 sec.	18 sec.
Speed of tilting	5,7°/sec.	5°/sec.
Range of column movement	1720 mm	1720 mm
Variable speed	From 0 to 12 cm/sec.	From 0 to 12 cm/sec.
Range of spot film device movement	1580 mm (2 way panel) 1380 mm (4 way panel)	1580 mm (2 way panel) 1380 mm (4 way panel)
Variable speed	From 0 to 12 cm/sec.	From 0 to 12 cm/sec.
Range of side panel mov.	30 cm	27,5 cm
Dimensions	246 x 74 cm	246 x 74 cm
Weight	Table: 950 Kg Cabinet: 80 Kg Console with base: 27 Kg Console without base : 7,9 Kg	Table: 1500 Kg Cabinet: 80 Kg Console with base: 27 Kg Console without base : 7,9 Kg
Maximum patient weight	160 Kg	160 Kg
Type of panel	Flat	Flat
Speed	3,5 cm/sec.	3,5 cm/sec
Range of focal distance	105 to 150 cm	105 to 150 cm
Incidence	- 40° / + 40°	- 40° / + 40°
Speed	4 cm/sec.	4 cm/sec.
Parallax adjustment	Yes	Yes
Rotation of X-ray tube (mechanical)	+/-180°	+/-180°
Spot film device format	18 x 24 to 36 x 43 cm	18 x 24 to 36 x 43 cm
Selection	2/3/4/5 according sizes, redivisible	2/3/4/5 according sizes, redivisible
Size of Image Intensifier	23/32/36/40 cm	23/32/36/40 cm
Retractable grid	Yes	Yes
Radiological room minimal size	(L)4,10 m x (I)3 m x (H)3,35 m Without limitation	(L)4,10 m x (I)3 m x (H)3,35 m Without limitation
AUTOMATIC SPOT FILM DEVICE		
	Fast sequence	Fast sequence
	Radiography and Tomography on the same film	Radiography and Tomography on the same film
	Remaining exposures display and cassette size display	Remaining exposures display and cassette size display
	Ionization chamber	Ionization chamber
	Grid 90L/cm Ratio 12:1 Focal distance 120 cm	Grid 90L/cm Ratio 12:1 Focal distance 120 cm

TOMOGRAPHY		
	Parallel tomographic plan programmable	Parallel tomographic plan programmable
Focal distance	105 to 120 cm	105 to 120 cm
Angles	- 8° - 20° - 40°	- 8° - 20° - 40°
Exposure time	Fast: 0.4/1/2 sec. Slow: 0.8/2/4 sec.	Fast: 0.4/1/2 sec. Slow: 0.8/2/4 sec.
Cutting layer	0 to 30 cm	0 to 30 cm
Step	1 mm	1 mm
OPTIONALS EXTRA		
	Image intensifier elevator	Image intensifier elevator
Longitudinal movement of panel	+/- 750 mm	+/- 750 mm
Speed	6 cm / sec.	6 cm / sec.
	PALADIO System	PALADIO System
	Stepping (step by step)	Stepping (step by step)
	Carbon fibre panel	Carbon fibre panel
	Lateral cassette support	Lateral cassette support
	Collimator	Collimator
	Gynaecological stirrups	Gynaecological stirrups

4. CONTROLS AND FUNCTIONS OF BACCARA TABLE

4.1. MAIN CONSOLE

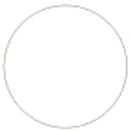


1	Emergency stop	24	S.I.D. Down
2	On/Off	25	Graphy Control
3	Tilting of the table to –20° or –25°	26	Preparation control
4	Tilting of the table to horizontal position	27	Fluoroscopy control
5	Tilting of the table to 90°	28	8° Tomography angle
6	Tilting of the tube to –40°	29	20° Tomography angle
7	Tilting of the tube to 0°/exit of the Tomography mode	30	40° Tomography angle
8	Tilting of the tube to +40°	31	Automatic height cutting layer
9	Selection*	32	Height cutting layer up
10	Movement (Transv./Longitudinal)	33	Height cutting layer down
11	Film section 1	34	Tomography low speed
12	Film section 2	35	Horizontal reverse (fluoro image)
13	Film section 3	36	Vertical reverse (fluoro image)
14	Film section 4	37	Reduction of the I.I. field
15	Film section 5	38	Increase of the I.I. field
16	Series exposure	39	Control of brightness
17	Input/Output cassette	40	Control of brightness
18	Retractable grid	41	Light centring device
19	Image intensifier elevator (option)	42	Iris opening
20	Digit mode	43	Iris closing
21	Compression up	44	Automatic collimator
22	Compression down	45	Collimator shutters adjustment
23	S.I.D. Up	71	Ascent of the table (90/25 HV)
		72	Descent of the table (90/25 HV)

* Only in case of longitudinal movement option

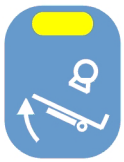
4.2. CONSOLE KEYBOARD CONTROLS

4.2.1. ON / OFF BUTTONS

KEY	DESCRIPTION	FUNCTION
1		Emergency switch : Stops immediately all movements of the table.
2		To start up the table, check that the indicator light above the key 2 is switched on and press on key 2. If the indicator light is off, check that the emergency stop buttons are not pushed (one on the table console, and one on console ('1')and that the power supply is ON. **<u>Remark</u>: Wait for 25 seconds before restarting the table.**

4.2.2. TABLE MOVEMENTS

4.2.2.1. TILTING

KEY	DESCRIPTION	FUNCTION
3, 4, 5	3 4  5	3 : Allows an anticlockwise tilting of the table to 90°. 4: Allows putting the table in the horizontal position. 5 : Allows a clockwise tilting of the table to – 20° or –25°. The luminous indicators show that the table has reached its ends of travel.

<u>Operating conditions</u> : No stops.

<u>Warning :</u> When you tilt the table in trendelembourg, Check that the patient is correctly fastened and that the shoulder holder is positioned. We remind to the user that the compression band is provided with the table and that shoulder holder is optional.

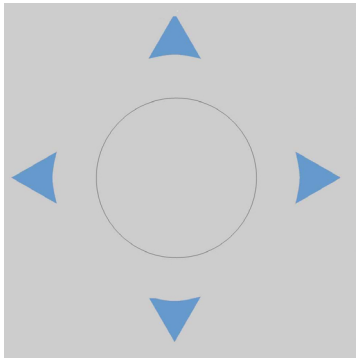
4.2.2.2. RAISING

KEY	DESCRIPTION	FUNCTION
71 & 72		These keys control the height of the table and allow an elevating, or a descending movement.

Operating conditions : Depends on ground and ceiling forbidding.

Remark : **Only with the 90/25 HV version.**

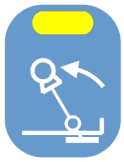
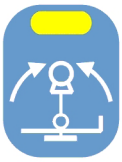
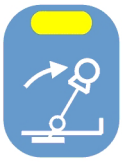
4.2.2.3. SPOT FILM DEVICE CARRIAGE

KEY	DESCRIPTION	FUNCTION
10		Allows the lateral movement of the panel. In case of longitudinal panel option, it allows the longitudinal movement of the trolley.

Operating conditions : The movements of the trolley or longitudinal panel have a variable speed proportional to the tilt of the joystick.

Remark : In configuration, two operating modes are available, **Demo** or **Normal** :
Demo : The movement of the table is equal to the movement of the joystick, top view.
Normal : The image on the TV monitor follows the joystick. The inversion cameras are connected to this mechanism according to the parameters.

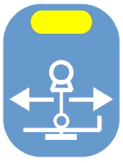
4.2.2.4. COLUMN

KEY	DESCRIPTION	FUNCTION
6, 7 & 8	 6  7  8	6 : Allow an anticlockwise tilting of the column until – 40°. 7 : Allow to position the column in vertical position at 0°. 8 : Allow a Clockwise tilting of the column until + 40°. The lights above indicate that the column has reached its ends of travel.

Operating conditions : No stops, and compression in parking position.

Remark : The key 7 allows to exit from the tomography mode.

4.2.2.5. SPOT FILM DEVICE AND COLUMN COMBINED

KEY	DESCRIPTION	FUNCTION
9		Allows to commute the joystick 10 between the carriage and the longitudinal panel. The light indicates the validation of the carriage movement with the switch 10.

Operating conditions : Presence of the four ways panel option

Remark : If the table has not the longitudinal panel option, this key is inactive and the light stays on.

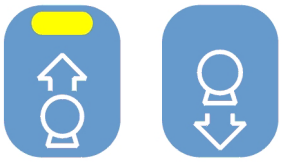
4.2.3. USE OF ELEMENTS

4.2.3.1. SPOT FILM DEVICE

KEY	DESCRIPTION	FUNCTION
17		Allows to push the cassette holder in and out. Operating conditions : None Remark : Any power control must be activated. The tube must be centered.
18		If the key 18 is voluntarily activated, the grid will retract itself from the X-ray field. - When the led flashes on the grid will retract. If the flashing is continuing in spite of the stop of the movement, there is a problem on the grid functioning. - If the led is switched off, the grid is in position. - If the led is switched on, the grid is rectracted. Operating conditions : The retraction must be validated in the configuration mode (parameter 204). Remark : None
11		Allows to choose the cutting of the film according to the respective indicators. Operating conditions: Cutting of 8cm mini and therefore possible choice of cutting according to the cassette size. Remark: It should be noted that the sections are selected on the remaining surface of the film. Therefore, it is possible to re divided a film in 1, 2, 3, or 4 according to the remaining area.
12		Allows to choose the cutting of the film according to the respective indicators. Operating conditions: Cutting of 8cm mini and therefore possible choice of cutting according to the cassette size. Remark: It should be noted that the sections are selected on the remaining surface of the film. Therefore, it is possible to re divided a film in 1, 2, 3, or 4 according to the remaining area.

13		Allows to choose the cutting of the film according to the respective indicators. Operating conditions: Cutting of 8cm mini and therefore possible choice of cutting according to the cassette size. Remark: It should be noted that the sections are selected on the remaining surface of the film. Therefore, it is possible to re divided a film in 1, 2, 3, or 4 according to the remaining area.
14		Allows to choose the cutting of the film according to the respective indicators. Operating conditions: Cutting of 8cm mini and therefore possible choice of cutting according to the cassette size. Remark: It should be noted that the sections are selected on the remaining surface of the film. Therefore, it is possible to re divided a film in 1, 2, 3, or 4 according to the remaining area.
15		Allows to choose the cutting of the film according to the respective indicators. Operating conditions: Cutting of 8cm mini and therefore possible choice of cutting according to the cassette size. Remark: It should be noted that the sections are selected on the remaining surface of the film. Therefore, it is possible to re divided a film in 1, 2, 3, or 4 according to the remaining area.
16		Allows a serial exposure that is to say that you don't have to release the graphy button 25 to take an exposure. Operating conditions: None Remark: None.

4.2.3.2. FOCAL

KEY	DESCRIPTION	FUNCTION
23 & 24	 23 24	These keys control the focal distance. The key 23 allows the elevating movement of the tube. The key 24 allows the descending movement of the tube. Remark : It should be noted that the height of the tube has an influence on the incidence of the column and on the tomography too.

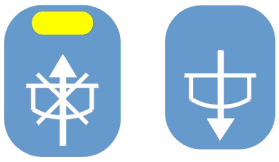
Operating conditions : Depend on the ceiling forbidding.

Remark : Tomography prohibited beyond 120 cm.

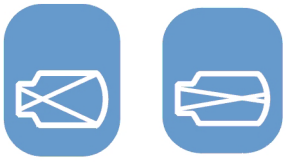
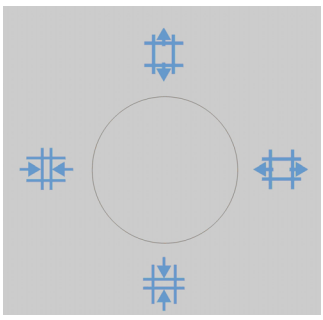
4.2.3.3. COLLIMATOR & CENTERING DEVICE

KEY	DESCRIPTION	FUNCTION
41		The key 41 is used for switching on the light centering device. Operating conditions : Enter a value in the parameter mode for timer temporizing. Remark : None
42		Controls the collimator iris opening. Operating conditions : The collimator must be in manual mode. Remark : None
43		Controls the collimator iris closing. Operating conditions : The collimator must be in manual mode. Remark : None
44		Allows the collimator to enter in the automatic or in the manual mode. (Led switched on = automatic) Operating conditions: The tube must be centered. Observation: The switch of the off-centre tube or the direct position of the generator will position the collimator into the manual mode.

4.2.3.4. COMPRESSION

KEY	DESCRIPTION	FUNCTION
21 & 22	 21 22	These keys control the compression. Operating conditions: In centered position, the compression can be brought to its lowest position, while if the column is tilted, the compressor travel is limited. Remark : It should be noted that as soon as the compression is in pressure on the patient, both column and panel movements are prohibited in order to protect the patient. (A message is displayed in case a prohibited movement request and the led of upper compressor end of travel begins to flash).

4.2.3.5. USE OF THE IMAGE INTENSIFIER

KEY	DESCRIPTION	FUNCTION
19		Controls the height of the image intensifier (option). Operating conditions : The image intensifier rises only if the cassette holder is in the parking position. Remark : as soon as the fluoroscopy is pressed in the mode film, the Image intensifier immediately returns in the upper position. This key operates only with the elevator image intensifier option.
37 & 38	 37 38	These keys control the image intensifier magnification. The key 37 reduces the I.I. field and the image is enlarged. The key 38 increases the I.I. field and the image is reduced. Operating conditions : None Observation : Keys are validated only if the image intensifier magnification has been defined.
45		Controls the opening and the closing of the collimator shutters. Operating conditions : The collimator must be in the manual mode. Remark : None.

4.2.3.6.TOMOGRAPHY MODE

- **Precautionary measures:**

The description which follows concerning the use of tomography supposes that the interface table-generator-digital system has been correctly realized and tested.

- **Display:**

Film	: **--- X ---**	Division	: **- / -**
Angle tomo	: **8°**	Time	: **Ø 50 / 1s**
Layer	: **0 mm**	Auto step	: **0 mm**
Tomo	: **Ready**	Speed	: **Fast or slow**

Film : indicates the film size.

Angle tomo : User's choice (8°, 20°, 40°). Indicates the scanning angle of X-rays.

Layer : corresponds to the tomo cutting layer. The number in mm indicates the distance in height of the patient body in comparison with the table top.

Tomo : indicates that the tomography is ready.

Division : indicates the current number of cuttings according to the size of the film. Between 1 and 5.

Time : The time automatically displays according to the chosen tomo angle.
Two speeds are available :
- 0, 50s = fast.
- 1 sec = slow and may be set using the turtle key.

Auto step : corresponds to the automatic incrementation in mm of the cutting layer.

Speed : corresponds to the current scanning speed fast or slow.

- **Warning messages**

MESSAGES	INSTRUCTIONS NOT OBSERVED	SUGGESTIONS
"Column off centre"	Column not centred	Center the column
" Carriage out of position"	The travel is insufficient to perform the tomography	Using the joystick, move lateraly the carriage until the warning message disappear.

- **Keys**

KEY	DESCRIPTION	FUNCTION
28		Allows to choose the tomography angle desired. Operating conditions : Pressing the key 26 allows to prepare the column ; the start of the tomography will be effective by pressing the graphy key 25. To exit from the tomography mode, just press the key 7 center – column. After each tomography, the column automatically refocuses for allowing the change of cassette. Remark : If the position of the column trolley or the focal height does not allow the tomography in the chosen angle, the indicator flashes and a message displays. (Re centre the column and bring back the carriage in the tomography range,...)
29		Allows to choose the tomography angle desired. Operating conditions : Pressing the key 26 allows to prepare the column ; the start of the tomography will be effective by pressing the graphy key 25. To exit from the tomography mode, just press the key 7 center – column. After each tomography, the column automatically refocuses for allowing the change of cassette. Remark : If the position of the column trolley or the focal height does not allow the tomography in the chosen angle, the indicator flashes and a message displays. (Re centre the column and bring back the carriage in the tomography range,...)
30		Allows to choose the tomography angle desired. Operating conditions : Pressing the key 26 allows to prepare the column ; the start of the tomography will be effective by pressing the graphy key 25. To exit from the tomography mode, just press the key 7 center – column. After each tomography, the column automatically refocuses for allowing the change of cassette. Remark : If the position of the column trolley or the focal height does not allow the tomography in the chosen angle, the indicator flashes and a message displays. (Re centre the column and bring back the carriage in the tomography range,...)
31		Allows the automatic progression of the cutting layer if this function is activated (indicator switched on). Operating conditions: None Remark: In this case, keys 32 & 33 allow choosing the height of the progression.

32		Allows to select the height of the cutting layer. Operating conditions : Active only if the tube is centered and is in the Tomography mode. Remark : with the automatic progression mode of the layer cut (see key 31), the keys 32 & 33 select the height of the step.
33		Allows to select the height of the cutting layer. Operating conditions : Active only if the tube is centered and is in the Tomography mode. Remark : with the automatic progression mode of the layer cut (see key 31), the keys 32 & 33 select the height of the step.
34		Selects the scanning speed. (indicator switched on = slow speed selected). Operating conditions : None. Remark : None.

4.2.3.7 STEPPING MODE

The description which follows concerning the use of stepping supposes that the interface table-generator-digital system have been correctly realized and tested. Those tests include among others the simulation of the different stages during a stepping test upon X-ray emission with a leaded rule.

The number of the steps and the distance to cover are chosen when the table is set and cannot be modified in normal use. Those parameters are determined by the user, collaborating with the fitter, and must be validated by testing without a patient but with a leaded rule according to the exposures provided by the laser copy. They are captured in the programming mode.

Displays

When the table is informed by the generator that the stepping mode is in progress, the screen of the table console displays specific information to this kind of examination (as tomography).

Stepping	: **arterio**	Current step	: **1 / 4**
Acquisition	: **masks**	Step length	: **20 cm**
Field	: **40 cm**	Coverage	: **80 cm**
Message area			

NB: The texts in bold type are given as examples

Stepping : shows the way of discharge of the contrast product and so the movements of the column .

« arterio » for the way from the pelvis down to feet (in the right direction of the table), **« phlebo »** for the way from feet up to the pelvis (in the left direction of the table).

Acquisition : indicates if you are in the acquisition mode of masks or in angiography mode.

Field : indicates the intensifier field selected in cm.

Current step : indicates the number of the current steps following by the total number of steps.

Step length : indicates the displacement distance in cm of the group base-column for one step.

Coverage : indicates the total of the travels (not the distance realized by the X-rays).

Messages area : area reserved to error messages, signals or various (see the following paragraphs).

Signals messages

Before starting an acquisition cycle or a test cycle with movements, the table checks that the configuration is correct and that it will permit to execute the cycle in its totality.

Signal messages on the line in the low part of the LCD screen inform the user on conditions which are not observed . Those messages begin by "WARNING".

The board on the next page details the list of the different messages :

MESSAGES	INSTRUCTIONS NOT OBSERVED	SUGGESTIONS
"Warning: not enough travel!"	The base of the spot film device will not be able to execute the displayed travel (and recorded in the 722 parameter)	Move the group base-column, base-spot film device to the left (arterio) or to the right (phlebo) with the joystick in order to allow the table to execute the travel indicated by the display.
"Warning: table with tilting!"	During the examination the table must be in horizontal position.	Use the key which allows the centring of the tilting on the main board, or the two keys of tilting (simultaneously) of the control board.
"Warning: too much focal!"	During the examination the focal is limited to 120 cm	Use the key of the focal downstroke on the main board.
"Warning: column not centred!"	The column must be centred compared with the spot film device.	Use the key of the column centring on the main board.
"Warning: I.I. field lower than 30!"	The field of the I.I. must be superior or equal to 30.	Use the key for increasing the I.I. field on the main board.
"Warning: Compression engaged!"	The compression must be in parking position.	Use the key for ascending the compression on the main board.

Error messages

These messages indicate that a problem has happened during the cycle. They begin by the word "error". In all cases, the stepping is stopped, and any movement is authorized. To go out of this position, you have to select an other post than "stepping" on the generator or to re-initialize.

ERROR MESSAGES	DESCRIPTION OF THE ERROR	SUGGESTIONS
"Error : initialization of inverter!"	The control software unit cannot communicate with the inverter of the column trolley	Contact the after sales service 'check the connecting and parameters of the frequency converter).
"Error : no image intensifier!"	Missing of the image intensifier or parameter indicating its presence misinformed.	No stepping without intensifier! Please contact your retailer.
"Error : wrong stepping parameters!"	Parameters of stepping at 0 (number of steps and distance to be covered).	Enter in the configuration mode (switch on board inside the keyboard) and set the parameters 721 and 722.
"Error : right end of travel reached!"	The column trolley or the spot film device trolley has reached the right software stop.	You have to quit the stepping mode and start again from the beginning. If the extra travel is reached, contact your Technical service.
"Error : Left end of travel reached!"	The column trolley or the spot film device trolley has reached the left software stop.	You have to quit the stepping mode and start again form the beginning. If the extra travel is reached, contact your Technical service.

Various messages

MESSAGES	DESCRIPTION	SUGGESTIONS
"Ok stepping"	Displays at the beginning of the examination after memorizing the start position in order to indicate that all conditions are right and that the table is ready.	After an exposure in the radiography mode, the group column-spot film device move on the next step.
"Stepping. Turtle key = store start position"	In normal stepping mode, asks to position the table and then to press on the turtle key to memorize the position of the start of the stepping.	Position the table. Press on the turtle key.
"Turtle key = back to start step 0"	Indicates that it is possible to return to the start position memorized by pressing the turtle key	Press on the turtle key until the stop of movements of the column trolley and the spot film device trolley.

"Tests. Turtle key to store start position"	In the mode exposure tests, asks to position the table, and then to press on the turtle key to memorize the start position of the stepping.	Position the table. Press on the turtle key.
"Tests. Move one step = levels key"	In the mode exposure tests, movement from one step to another with the keys "cutting layer up" and "cutting layer down".	Press on the key "cutting layer up" and "cutting layer down" until the stop of movements of carriage column and spot film device.
"Tests. Turtle key = back to start"	In the mode exposure tests, indicates that it is possible to go back to the start position pressing on the turtle key.	Press on the turtle key until the stop of the movements of column and spot film device carriage.

Preparation

- Position the table and the patient with the key board of the table.

- Enter the stepping mode on the generator and select the kind of examination (arterio or phlebo). The LCD screen of the table keyboard displays information relative to the stepping.

- Position the axis of the X-rays at the starting point of the area to explore using the keyboard and the scopy. It is advised for the starting position not to be on a stop of software travel.

- If the starting conditions of the stepping mode are not realized, a message of warning corresponding is displayed on the line in the lower part of the LCD screen (see paragraph 13.1.1.2. Warning Messages).

Mode tests

- If the mode tests is selected (from the digital system), the led above the turtle key is flashing and the message "test. Turtle key to store position" is displayed on the LCD screen.

- Position the table on the starting position desired. Press on the turtle key to memorize. The led above the turtle key stay alight. If a signal message is displayed, it is not possible to memorize the position (see paragraph 13.1.1.2. Warning Messages).

- Realize a graphy, and then set the constants of the generator according to the result you have got on the image displayed on the digital screen, this is to say, some seconds later.

- The message "tests. Move one step: level keys" is displayed. Move the group column-spot film device on the next step with the key "cutting layer up". Keep the key pressed until the stop of the movement, otherwise, the table may stop between two steps (see paragraph 7 below).

- Realize a new setting of the constants as indicated in the paragraph 3 above. It is possible to go back to the previous steps by keeping the key "cutting layer down" pressed.

- To go back to the starting position, keep the turtle key pressed until the return to the step 0. The led above the turtle key is flashing. Now, it is possible to memorize another position of starting and to start the tests again, or to work in mode stepping (by the digital system).

- If you release one key of movement (cutting layer up, down or turtle key), before the stop on the desired step or on the starting position, the message "tests. Turtle key = back to start position" is displayed. It is only possible to go back to the starting position by pressing the turtle key.

Mode stepping : cycle of masks acquisition

- If the stepping mode is selected (from the digital system), the led above the turtle key is flashing and the message "stepping. Turtle key = memo start" is displayed on the screen.

- Position the table on the starting position desired. Press on the turtle key to memorize. The led above the turtle key is switching off. If a signal message appears, it is not possible to memorize (see paragraph 13.1.1.2. Warning Messages).

- Press on the preparation key and the on the graphy key to start the acquisition of a series of exposures. The preparation key will be keep during all the cycle, otherwise the cycle is stopped.

- When you release the key "graphy", the group column-spot film device realize a movement of one step whose the width is displayed on the LCD screen. The number of the current step is also mentioned.

- As soon as the group column-spot film device is locked, press again on the key "graphy" to start the next series of exposures..

- Repeat the sequences 4 and 5 as much as all the steps are not completely realized. At the releasing of the graphy on the last step, the group column-spot film device stay fixed. Now the user can release the preparation key.

NB : When the cycle is started (first press on graphy), all other movements are forbidden until the normal end or not of the stepping. It is possible at every time to go out of the stepping mode by selecting an other post on the keyboard of the generator. This allows to cancel on the table all that has been done previously in the stepping mode.

Mode stepping : back to the starting position

- When the user decides it, he puts the group column-spot film device in starting position by pressing the turtle key, and these until it stops. When he release the turtle key, the LCD screen indicates the moving in angiography (in the acquisition field).

- If you release the preparation key before the end of the acquisition of the masks or angiography, the message "turtle key = back to the step 0" is displayed. It is now only possible to go back to the starting position by pressing the turtle key.

Mode stepping : Cycle of Angiography

The process is the same that the process of the acquisition of the masks.

- When the contrast product is injected, press on the preparation key and then on the graphy key to start the acquisition of a series of exposures.

- When you release the graphy key, the group column-spot film device realise a movement one step to set himself on the positions yet memorised in the cycle of the masks.

- As soon as the group column-spot film device is fixed, press again on the graphy key to start the next series of exposures.

- Repeat the operations 2 and 3 to follow the contrast product as much as all the steps have not been realized. When you release the graphy on the last step, the group column-spot film device stay fixed. The user then can release the preparation key.

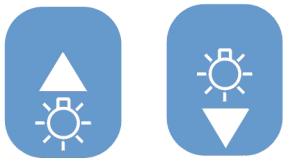
NB : It is possible to do angiographies with the same masks (and so the same position of starting and the same movements) if you don't go out of the stepping mode.

End of the examination

- Come out of the stepping mode by selecting an other post on the keyboard of the generator.

- Work in the digital system to pull out and to treat the exposures.

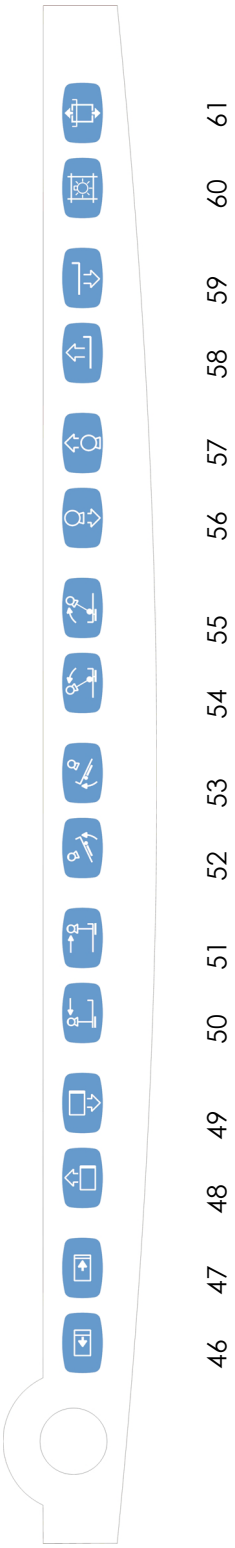
4.2.4. VIDEO CONTROLS

KEY	DESCRIPTION	FUNCTION
39 & 40	 39 40	These keys control the TV chain monitor brightness. Operating conditions : None. Remark : None.
35 & 36	35 36	These keys control the camera scan reverses. Operating conditions : None Remark : Keys may reverse the controls of the joystick 10 (see parameters configuration).

4.2.5. GENERATOR CONTROLS

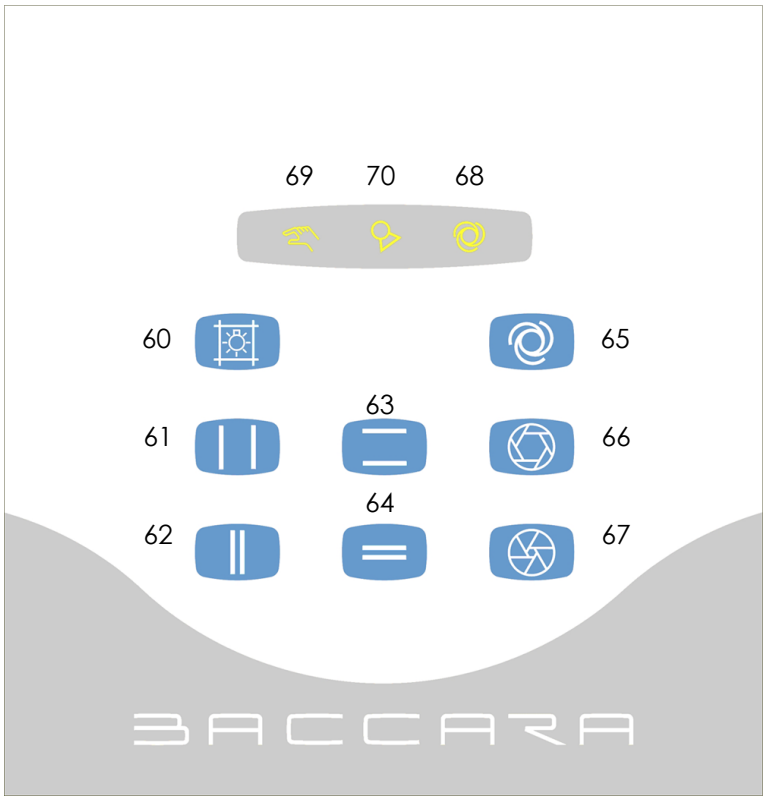
KEY	DESCRIPTION	FUNCTION
20		Allows to select the digit mode (led switched on = mode digit activated) Operating conditions : In preparation the cassette holder stays in the parking position and the exposure is performed on the image intensifier. Remark : External order possibility for the generator.
25		Performs the exposure. Operating conditions : The cassette holder must be pushed in with a cassette inside, the first time activated (preparation) and the ready signal present from the generator. Remark : The tube must be centered.
26		Prepares the graphy. Operating conditions : Cassette holder pushed in with cassette. Remark : The tube must be centered.
27		Performs the fluoroscopy and may also push in the cassette holder. Operating conditions: The tube must be centered. Remark: Operates at the same time as the fluoroscopy pedal.

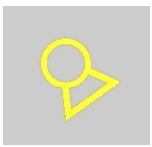
4.3. TABLE CONTROL PANEL



KEY	DESCRIPTION	FUNCTION
46 & 47		Move the optional longitudinal panel option. Pressing simultaneously on both Keys will re centre automatically the longitudinal panel.
48 & 49		Move the lateral panel.
50 & 51		Move the carriage .
52 & 53		Allow to tilt the table. Pressing simultaneously on both Keys put the table in horizontal position.
54 & 55		Allow to tilt the tube. Pressing simultaneously on both Keys will recentre automatically the column.
56 & 57		Allow to move up and down the tube (focal).
58 & 59		Allow the ascent or the descent of the BACCARA table version 90/25 HV.
60		Switch on the light centering device.
61		Allows the cassette input/output.

4.4. COLLIMATOR CONTROL PANEL



KEY	DESCRIPTION	FUNCTION
60		Switches on the light-centering device.
61		Controls the opening of the collimator shutters on X axe.
62		Controls the closing of the collimator shutters on X axe.
63		Controls the opening of the collimator shutters on Y axe.
64		Controls the closing of the collimator shutters on Y axe.
65		Setting of the collimator in automatic mode.
66		Controls the iris opening .
67		Controls the iris closing .
68		Selection of automatic mode
69		Selection of manual mode
70		Indicator light **70** switched on = tube off-centre.

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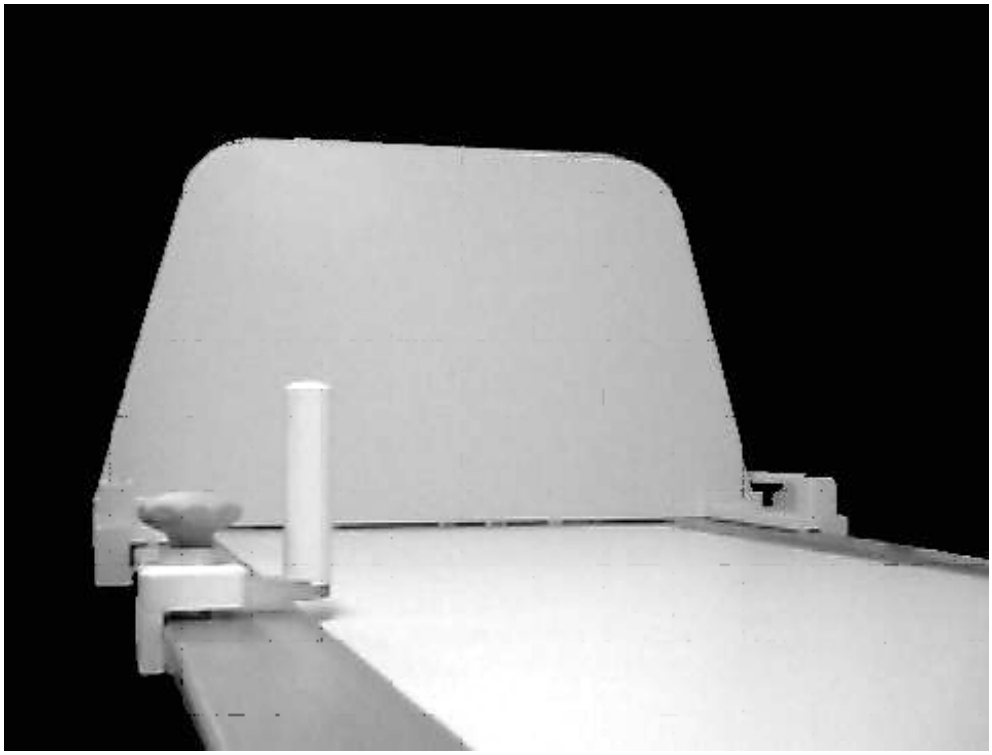
5. ERROR CODES

ERROR	TITLE	EXPLANATION
1	« Move up the compressor »	This warning message is displayed on the LCD of the console when the operator asks for a mechanical movement and when the compressor is not in its highest position, i.e at rest. Some mechanical movements may be dangerous when the compressor is used and when a patient is immobilized beneath it. This is why some movements are prohibited as long as the compressor is not positioned in its highest position. The highest position is reached when the indicator light located above the compressor is turned on. The movements that can cause this error type are: · The carriage of the column –cassette holder unit. · A variation of the incidence · A movement of the lateral panel.
2	« Move down the focal »	
3	« Move down the carriage »	
4	« Tilt the column »	
5	« Tube in ceiling safety »	
6	« Image intensifier in ground safety »	
7	« Park the ceiling suspension »	The ceiling suspension is not on its parking switch.
8	« Arming not performed »	
9	« Move up the compressor »	
10	« Push in the patient panel »	
11	« Ceiling interdictions »	
12	« Move down the table »	
13	« Trolley out of position »	
14	« Centre the column »	
15	« Collimator in automatic »	
16	« Compressor engaged »	
17	« Move up the table. »	
18	« Table in over run. »	This message displays when a problem has caused a mechanical part movement out of its normal operating area. It this problem was caused by a wrong movement during the calibration phase, please refer to the chapter « how to restart the remote controlled table after a disruption caused by a movement which has activated an over travel contact? » If this problem has occurred in the normal operating mode, you must immediately call the technical department, which will proceed to an analysis of the breakdown.
19	« Leave the digital technique »	If the BACCARA table is equipped with a manual spot film device, you must leave the digital technique of the generator when you insert a cassette in the holder.

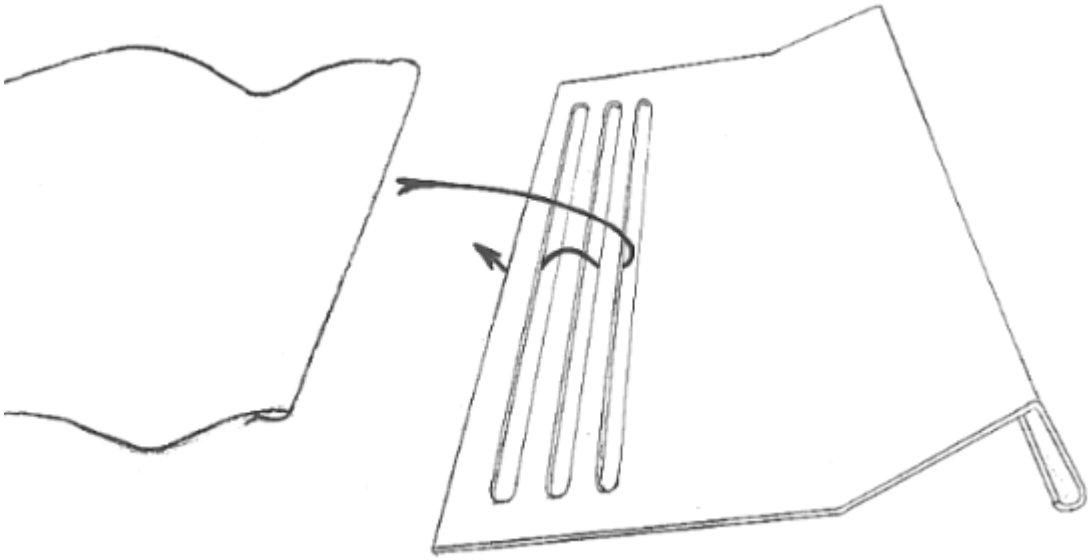
20	« Move out the lateral bed patient»	If the BACCARA table is equipped with an HV elevator, when you want to tilt the table in vertical position, it is necessary to move out the lateral bed patient in order to avoid a internal collision between the elevator guide rail and the right arm of the support panel. NB: It is possible to set the parameter 726 before 90° in order to avoid that the table reach this position.
21	« Structure elevation elevating 90/25HV table »	In the case of a BACCARA table equipped with a HV elevator, this message indicates that there is a risk of internal collision between the elevator arm lever and the structure of the panel support patient. This message has three normal cases of display: - Table tilted in vertical position: if you move up the elevator or if you tilt towards the vertical limit => gently lower the elevator or gently tilt the table towards the horizontal position in order to erase this message. - Table tilted in Trendelenbourg : If you lower the elevator, or if you tilt towards the trendelenbourg limit => gently raise the elevator or gently tilt towards the horizontal position in order to erase this message. - Table in horizontal position: If you lower the elevator at the minimum => gently raise the elevator in order to erase this message.
22	«Failure potentiometer P1 bed patient»	If the system detects an exceeding of the inferior and superior terminals of the potentiometer, all table movements watched by potentiometers will be prohibited. Check the potentiometer: state, fixing, wiring, calibration (configuration mode).
23	«Failure potentiometer P2 tilting»	Identical to error 22.
24	«Failure potentiometer P3 spot film device»	Identical to error 22.
25	«Failure potentiometer P4 column»	Identical to error 22.
26	«Failure potentiometer P7 focal»	Identical to error 22.
27	«Failure potentiometer P9 elevator»	Identical to error 22.

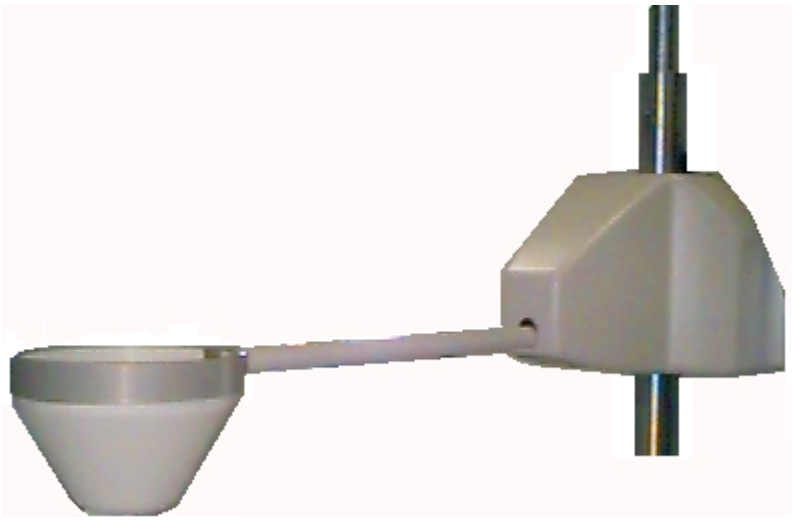
6. POSITIONING AND REMOVING OF ACCESSORIES

Accessories such as handles, footrest, and compression winch are designed to slide on the rails of the panel.



The compression band is held on the winch by a hook for that purpose ; on the other side the compression is held on the fixing plate as indicated below.





Press and turn ¼ around (toward left or right) by pressing to put or to remove the compression device.